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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,372	02/27/2002	Tatsuoki Kohno	219995US0TTCD	4786

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EXAMINER

WEINER, LAURA S

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,372

Applicant(s)

KOHNO ET AL.

Examiner

Laura S. Weiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,8,10 and 12-22 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8,10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8-12-05 has been entered.

Election/Restrictions

2. Newly submitted claims 16-22 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

I. Claims 1-4, 6, 8, 10, 12-15, drawn to a nonaqueous liquid electrolyte and a secondary battery comprising a separator, classified in class 429, subclass 247.

II. Claims 16-21, 22, drawn to a non-polymerized nonaqueous liquid electrolyte and a secondary battery, classified in class 429, subclass 324 and comprising a method for making a secondary battery, classified in class 29, subclass 623.1.

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The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not disclosed as capable of use together and have different effects such as Group I, contains a liquid electrolyte having an apparent viscosity of 200-10,000 cP at a shear rate of 20 S⁻¹; contains the macromolecular material in a MW of 1×10^3 to 1×10^8 amu and contains a battery comprising a battery comprising a separator made of a porous material having pores disposed between the positive and negative electrodes and the nonaqueous liquid electrolyte is retained within the pores of the separator versus Group II which contains a non-polymerized nonaqueous liquid; a secondary battery comprising the liquid in which having a capacity retention ratio, a constant current and voltage and discharging rates. In addition, Group battery shows no leakage of the liquid electrolyte after application of a load of 300 kg per cell.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 16-22 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

3. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification of “an apparent viscosity at 20 degrees C of 200 cp to 10,000 cp at a shear rate of 20 S⁻¹”.

4. Claims 1-4, 6, 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 2 it is unclear what the difference is between “viscosity” versus “apparent viscosity”. This makes the claims vague and indefinite.

Claim Rejections - 35 USC § 103

5. Claims 1-4, 6, 8, 10, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi et al. (US 2002/0160269).

Choi et al teaches an electrolyte comprising a first ionic conductive polymer and a second ionic conductive polymer and an electrolyte solution. Choi et al. teaches on page 2, [0028] a lithium battery comprising a cathode, an anode, a porous film disposed between the cathode and anode and an electrolyte. Choi et al. teaches on page 4, [0039], that any organic solvent can be used to form the electrolytic solution such as

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propylene carbonate, ethylene carbonate, dimethyl carbonate, butyrolactone, etc. Choi et al. teaches on page 6, Example 4, an electrolyte comprising 15 g of polyethylene oxide having a weight average of 500,000 [5 wt%] and 5 g of polyethyleneglycol dimethyl ether in 200 g of dimethyl carbonate and mixing the same with 80 g of an electrolytic solution comprising ethylene carbonate and propylene carbonate. Choi et al. teaches on page 5, [0052], that the characteristics of a lithium polymer battery can be maximally enhanced by adjusting the kind and molecular weight of a polymer or by adjusting the viscosity of the polymeric electrolyte forming composition. Thus, the polymeric gel electrolyte has a variety of applications.

Choi et al. teaches the claimed invention except does not specifically the viscosity of the electrolyte or the ratio of ion conductivity but it would be within the skill of the ordinary person to adjust the viscosity of the electrolyte to 60-30,000 cP and therefore have an apparent viscosity of 200-10,000 cP and to have the ratio of ion conductivity be less than 0.1 depending on the efficiency and cost requirements and because Choi et al. teaches that it is known by adjusting the viscosity of the polymeric electrolyte forming composition, the characteristics of a lithium polymer battery can be maximally enhanced and is concerned with ionic conductivity by employing two different ionic conductive polymers.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the viscosity of the electrolyte to 60-30,000 cP and therefore have an apparent viscosity of 200-10,000 cP and to have the ratio of ion

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conductivity be less than 0.1, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.


It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust viscosity of the electrolyte to 60-30,000 cP and therefore have an apparent viscosity of 200-10,000 cP and to have the ratio of ion conductivity be less than 0.1, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S. Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura S Weiner
Primary Examiner
Art Unit 1745

September 20, 2005